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The Montana Travel Industry, 1983

Prepared for
Montana Promotion Division
Department of Commerce
and
Governor's Council on Economic Development

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October 1984

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ACKNOWLEDGEMENTS

A great many people made a contribution to this study of the economics of travel and tourism in Montana. I especially appreciate the time they took to provide assistance often on short notice which allowed us to conduct the analysis without interruption.

Maxine Johnson, Paul Polzin, and Jim Sylvester of the Bureau of Business and Economic Research at the University of Montana provided excellent technical and editorial assistance.

Bruce Finnie, partner in Eco Northwest assisted in the research design and methodology.

Merle Faminow and Gary Brester of the Department of Agricultural Economics and Economics at Montana State University provided the Montana Input-Output Model and computer time for the input-output analysis.

William Elison, Mansfield Library, University of Montana gave us expert assistance on a computerized literature search.

Philip Colbert, Montana Department of Highways provided the highway traffic statistics and petroleum use statistics.

Bob Rafferty, Montana Department of Jobs and Industry made available employment data.

Patricia Roberts, Montana Department of Commerce saw that we had the most up-to-date census information.

Eric Ditwiler was my research assistant. His insight and careful attention to detail made a substantial contribution to the research.

Judy Donovan of the Bureau of Business and Economic Research is commended for maintaining a sense of humor while deciphering our handwriting and helping us meet deadlines.

To all of these individuals I express my sincere thanks.

TABLE OF CONTENTS

Page

Executive Summary

I. Purpose of the Study 1

II. Choice of Methodology 3

III. Step-by-Step Analysis 5

Number of Nonresident Visitors 5

Visitors Arriving by Automobile 5

Visitors Arriving by Bus 8

Visitors Arriving by Air 10

Visitors Arriving by Rail 13

Total Nonresident Visitors 13

Nonresident Expenditures Per Party Per Day 13

Total Nonresident Expenditures 17

Income from Nonresident Travel Expenditures 21

Nonresident Expenditures and Labor Income from Nonresident Travel by Type of Travel 25

Resident Expenditures for Travel in Montana 27

Income from Resident Travel 29

Total Travel Expenditures and Total Labor Income from Travel 30

Checking the Expenditure Figures 30

Employment 34

The Travel Industry at the County Level 36

Gasoline Taxes 41

Page

Other State and Local Taxes 44

Capital Formation 44

IV. Review of Literature 49

Appendix A: Input-Output Model 63

Appendix B: Determination of the Percentage of Autos from Out-of-State 65

LIST OF FIGURES

Figure		Page
1	Location of Traffic Count Stations	7

LIST OF TABLES

Table		Page
1	Estimating the Number of Visitors Arriving by Automobile, Montana, 1979-1983	9
2	Estimating the Number of Visitors Arriving by Bus, Montana, 1979-1983	11
3	Estimating the Number of Visitors Arriving by Air, Montana, 1979-1983	12
4	Estimating the Number of Visitors Arriving by Rail, Montana, 1979-1983	14
5	Nonresident Visitors, Montana, 1979-1983	15
6	Inflation of Expenditures from the 1979 Old West Survey to 1983 Dollars	18
7	Expenditures Per Party Per Day from Old West Survey, Inflated to 1983 Dollars	19
8	Estimating Total Expenditures by Nonresident Visitors, Montana, 1979-1983	20
9	Estimating Labor Income from Expenditures	22
10	Labor Income from Nonresident Travel Expenditures, Montana, 1979-1983	23
11	Labor Income from Nonresident Travel Expenditures, by Purpose of Trip, Montana, 1983	26
12	Total Travel Expenditures in Montana, 1979 and 1983	31
13	Total Labor Income Generated by Travel, Montana, 1979 and 1983	32
14	Travel-Related Employment, Montana, 1979 and 1983	35
15	Counties With One Percent or More of Total Employment in Hotels and Motels, Montana, 1982	37
16	Counties With One Percent or More of Total Labor Income from Hotels and Motels, Montana, 1982	38

Table		Page
17	Counties With One Percent or More of Total State Hotel and Motel Employment, Montana, 1982	39
18	Counties With One Percent or More of Total State Labor Income from Hotels and Motels, Montana, 1982	40
19	Travel-Related Employment in Counties with One Percent or More of Total State Travel Employment, Montana, 1982	42
20	Estimates of Taxes Attributable to Nonresident Travel Activity, Montana, 1983	45
21	Selected Characteristics of Travel-Related Industries, Montana, 1977 and 1982	47
22	Multipliers from Selected Tourism Studies	61

EXECUTIVE SUMMARY

Montana's nonresident travel industry is alive and reasonably healthy. Among the state's basic industries -- those which sell goods or services to nonresidents or otherwise bring money in from out-of-state -- only nonresident travel and heavy construction have increased their employment and payrolls in recent years.

Since 1979, most of Montana's basic industries have suffered permanent losses of jobs and income as plants and mines have closed and an interstate railroad ceased operation. Heavy construction was an exception because of the Colstrip project, but as that project nears completion construction too will likely experience a decline.

That portion of the travel industry which serves nonresident visitors also is defined as a basic industry. It brings money in from outside the state. Between 1979 and 1983, labor income generated by the expenditures of nonresident travelers is estimated to have increased 10 percent, from $96 million to $106 million, after adjustment for inflation. This was a notable achievement during a period of recession and increasingly unfavorable money exchange rates for Canadian visitors.

About the Data

This study is based on data from secondary sources. We attempted to use the best information available, but data on travel and tourism in Montana are out of date and incomplete. Accordingly, some of the figures may not be entirely accurate, but we believe that the trends revealed are reliable. We tried to be conservative in making the estimates, preferring to err by understatement rather than overstatement.

Figure 1 illustrates changes in labor income earned by workers in Montana's basic industries between 1979 and 1983. Labor income includes wages and salaries and certain fringe benefits plus proprietors' income -- in other words, all the income earned through participation in the labor force. Labor income is used as a measure of changes in economic activity when data equivalent to gross national product are not available, and as a measure of an industry's contribution to the economy. The figures are expressed in constant 1983 dollars.

In 1983, labor income from the nonresident travel industry accounted for 6 percent of total labor income from basic industries in Montana. Four years earlier, in 1979, it had contributed 5 percent of the total.

The increased income from nonresident travel resulted from a growth in number of visitors. Their numbers increased from less than 2.0 million in 1979 to more than 2.2 million in 1983 (figure 2). Total expenditures by nonresident travelers also are estimated to have grown -- from $382 million in 1979 to $423 million in 1983 after taking inflation into account (figure 3). It was not a steady growth; small setbacks occurred in 1980 and 1982. But certainly the industry has been much less cyclical than most other basic industries in the state.

People travel for a variety of reasons. The most recent travel survey in Montana -- the Old West Commission Survey completed in 1980 -- reported that 30 percent of nonresident travel in the state in 1979 was travel for pleasure. Travel for pleasure is the usual definition for tourism. It should be noted that it is a rather narrow definition, by virtue of

excluding the 23 percent of nonresident visitors in 1979 who said they were visiting friends and relatives.

Applying the 30 percent figure to expenditures and labor income suggests that nonresident tourists spent $127 million in Montana in 1983, and those expenditures generated $32 million in labor income. If one chose to include travelers visiting friends and relatives as tourists, those numbers would be $224 million and $56 million respectively.

We emphasize expenditures of nonresident travelers because, as noted above, they bring money into the state; the portion of the travel industry serving them is part of our economic base.

But Montanans also travel in Montana. The Billings resident vacationing in Flathead County has not added to the state's economic base, but he has contributed to the county economy. And if he chose Flathead over a trip to Puget Sound, he has kept money in state that otherwise would have left. We estimate that Montanans traveling in Montana spent a total of $391 million in 1983, of which $98 million was for pleasure (tourist) travel. Those figures compare to $366 million and $92 million in 1979. Labor income generated by these expenditures is estimated at $98 million in 1983 and $92 million in 1979 (table 1). These figures are very rough estimates.

Employment

There were approximately 20,200 travel-related jobs in Montana in 1983, compared to 17,600 in 1979. About one-third of the 1983 total was in the hotel-motel sector.

Average earnings per worker are considerably lower than in many other Montana industries because of lower wage rates and the large number of

part-time and seasonal jobs. Nevertheless, the industry fills an important function by providing a large number of jobs for unskilled workers as well as those who desire part-time or seasonal work. It also offers entrepreneurial opportunities for people wanting to start their own businesses.

A few of the larger counties -- Yellowstone, Gallatin, Flathead, and Cascade -- account for almost half of total travel-related employment (table 2). Yellowstone and Cascade counties, partly because of their size, are not so dependent upon travel as are Flathead and Gallatin counties. Those two counties are located adjacent to our two national parks, and together with Glacier and Park and Beaverhead counties (also adjacent to the parks) are the most heavily dependent upon travel (table 3). About 23 percent of the Glacier County's total employment is concentrated in travel-related businesses. In each of the other four counties, the proportion is approximately 10 percent or more.

Table 1

The Montana Travel Industry
1979 and 1983

	1979	1983	Percent Change
	(Millions of Constant 1983 Dollars)		
Total travel expenditures	748	814	9
Nonresident	382	423	11
Tourist	114	127	11
Resident	366	391	7
Tourist	92	98	7
Total labor income generated	188	204	9
Travel by nonresidents	96	106	10
Tourist	29	32	10
Travel by residents	92	98	7
Tourist	23	24	7
	(Number of Jobs)		
Number of travel-related jobs	17,600	20,200	15
Nonresident	9,000	10,500	17
Resident	8,600	9,700	13

Source: University of Montana, Bureau of Business and Economic Research.

Note: Percentage changes calculated from unrounded numbers.

Table 2

Concentration of Travel-Related Employment in Montana Counties, 1983

County	Percent of State Travel Employment in County
Yellowstone	15.4
Gallatin	11.2
Flathead	10.8
Cascade	9.2
Silver Bow	6.8
Missoula	6.6
Glacier	6.5
Lewis and Clark	5.0
Park	3.3
Dawson	2.9

Source: University of Montana, Bureau of Business and Economic Research.

Table 3

Montana Counties Most Heavily Dependent
on Travel-Related Employment, 1983

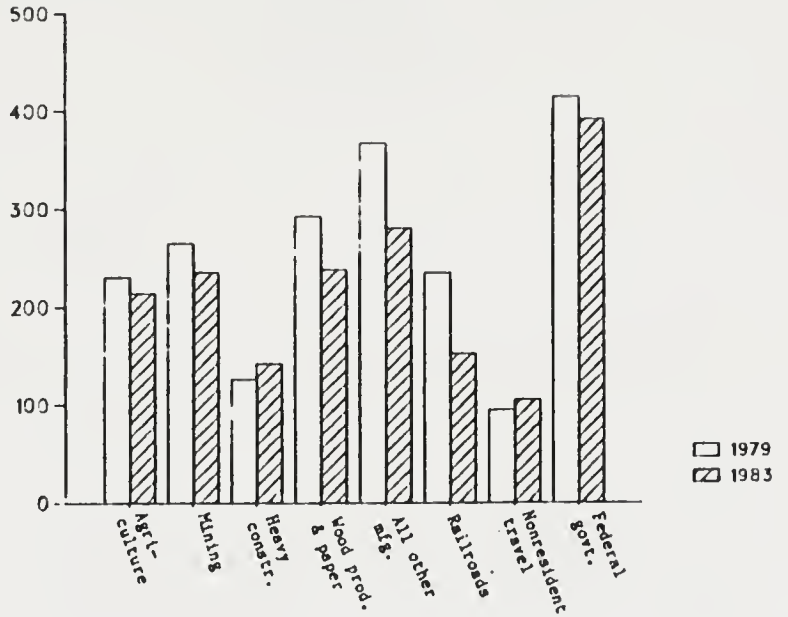
County	Percent of County Employment Which is Travel-Related
Glacier	23.0
Park	12.0
Flathead	10.1
Gallatin	10.0
Beaverhead	9.9
Madison	9.5
Silver Bow	9.2
Dawson	8.4
Roosevelt	5.8
Richland	5.2

Source: University of Montana, Bureau of Business and Economic Research.

Figure 1

Changes in Labor Income,
Basic Industries, Montana
1979-1983

(In Millions of Constant 1983 Dollars)

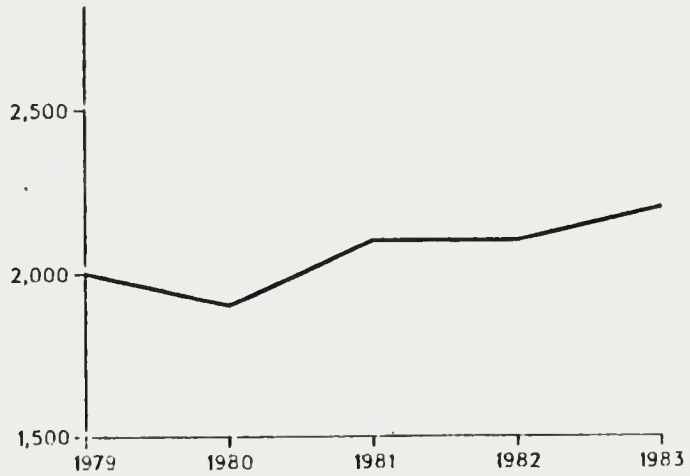


Sources: U.S. Department of Commerce, Bureau of Economic Analysis, Regional Economic Information System, unpublished data (Washington, DC, 1984), and University of Montana, Bureau of Business and Economic Research.

Figure 2

Number of Nonresident Visitors,
Montana
1979 and 1983

(In Thousands)

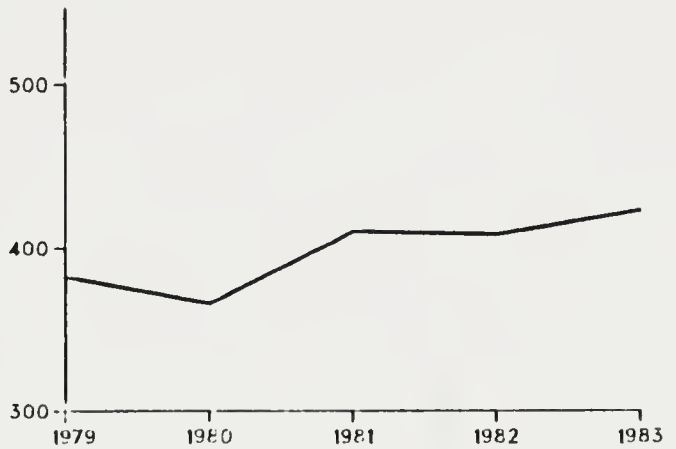


Source: University of Montana, Bureau of Business and Economic Research.

Figure 3

Expenditures by Nonresident
Visitors, Montana
1979-1983

(In Millions of Constant 1983 Dollars)



Source: University of Montana, Bureau of Business and Economic Research.

I. Purpose of the Study

Travel and tourism are an important part of the economy in the state of Montana. With two national parks, splendid scenery, a nationwide reputation for superb hunting and fishing and several well-known wilderness and ski areas, it is only natural that Montana would attract a great number of visitors from other states. Furthermore, the state shares a common border with Canada and as a result many Canadians cross over to ski, shop, and engage in other activities.

Besides the Canadians, Montana attracts a large number of visitors from Japan and Western Europe. They visit the state primarily to tour Glacier National Park and Yellowstone National Park.

Although it is obvious that travel accounts for a significant portion of state income, questions are often asked by legislators and policy makers about just how important it actually is. The employment that can be attributed to travel, its role in creating new jobs, how much money out-of-state visitors spend in Montana, the income created by those expenditures, and the amount of taxes generated by travel expenditures are examples of the issues that are of interest to state officials and private sector decision makers.

The purpose of this study is to address some of these issues in an attempt to provide legislators, policy makers and others with better information on which to base their decisions. The specific objectives of this study were:

1. To determine the trend in the travel sector of the economy between 1979 and 1983.

2. To estimate the total expenditures for travel and tourism in 1979 and 1983.
3. To determine the impact of the travel industry on employment and income in Montana.
4. To estimate selected tax revenues that result from expenditures by nonresident visitors.

II. Choice of Methodology

An extensive literature review was conducted to evaluate alternative methodologies. Upon concluding the review, we decided to use a refined version of the methodology wich Dr. Bruce Finnie used in his 1980 study.[1] This decision was made for several reasons:

1. Updating the 1980 study would provide continuity; differences in conclusions would not be caused by dissimilar methodologies.
2. It was one of the more sophisticated methodologies found in the literature.
3. This methodology makes the best use of information which is available for Montana. Identical data are not available for every state. For example, there are no hard figures for retail sales in Montana (except for Census years) because there is no sales tax in this state.

While this report uses the same basic outline as Finnie, it was possible to make some refinements because more and better data were available.

The greatest weakness of Finnie's report -- and of this study -- is that both are based on data from the Old West Regional Commission's travel survey, completed in 1980.[2] There are questions about the accuracy of the expenditure data from that survey because they came from respondents'

---

[1]Finnie, Bruce, The Economic Impact of Tourism in Montana, Helena, September 1980.

[2]Old West Commission, Old West Region Nonresident Travel and Recreation Survey, November 1980.

recollections of how much money they had spent in particular expenditure categories. In addition, some of the findings of the survey may be out of date. For example, given the recent change in gasoline prices, does the average traveler still spend 27.7 percent of his travel budget on gasoline? Until another survey is done, we have no better expenditure data available.

The review of literature appears at the end of this report. Following the review, Appendices A and B provide further information about methodology.

III. Step-by-Step Analysis

Number of Nonresident Visitors

Visitors Arriving by Automobile. In order to estimate the number of people who have visited Montana since 1979, data were collected from several sources. The Montana Department of Highways and the U.S. Customs Service provided data used to estimate the number of visitors who arrived by auto (including pickups and motor homes) or bus. The Civil Aeronautics Board in San Mateo, California and the Division of Aeronautics, Montana Department of Commerce were the sources of data on air travel. Amtrak figures on visitors arriving by train were obtained from the Montana Department of Commerce.

Appendix B provides a description of how the traffic count data were manipulated to determine the proportion of visitors who were from out-of-state. Since the majority of people who visit Montana arrive by auto, that proportion becomes an extremely sensitive element in the analysis. Slight changes in the percentage can have a significant impact on the expenditure estimates. In this study we assumed that 36.7 percent of all auto traffic was from out-of-state. This estimate came from the visual traffic counts conducted by the Department of Highways. Unfortunately 1983 was the last year that the Department of Highways used this technique for measuring out-of-state traffic, thus a current estimate will not be available for future studies.

The Department of Highways measures the daily traffic flow at several stations throughout Montana. However, not all of them have a significant

portion of out-of-state traffic, an important consideration for the purposes of this study.

Figure 1 shows the border traffic count stations whose reports were used in this study. The Department of Highways stations pictured are estimated to measure at least 95 percent[3] of the traffic coming into Montana while the U.S. Customs stations measure virtually all of the traffic crossing the border from Canada to Montana.[4]

Highway traffic count data were not available for traffic coming into Montana from the west on U.S. Highway 2, the west on U.S. Highway 12, the east on U.S. Highway 2, or the southeast on U.S. Highway 12. Accordingly, our estimates of the traffic count may be somewhat conservative. Future reports should, if possible, incorporate data from these entrances.

To estimate the number of visitors who arrived by auto, the yearly incoming totals for each traffic count station for each year were summed. This total was then multiplied by the percentage of vehicles estimated to be noncommercial and the percent of noncommercial estimated to be from out-of-state. This resulted in a total number of out-of-state noncommercial vehicles entering the state for each year. These totals were then multiplied by the figure of 2.56 people per car, from the Old West Survey. This provided a final figure of the number of visitors arriving by automobile for each year.

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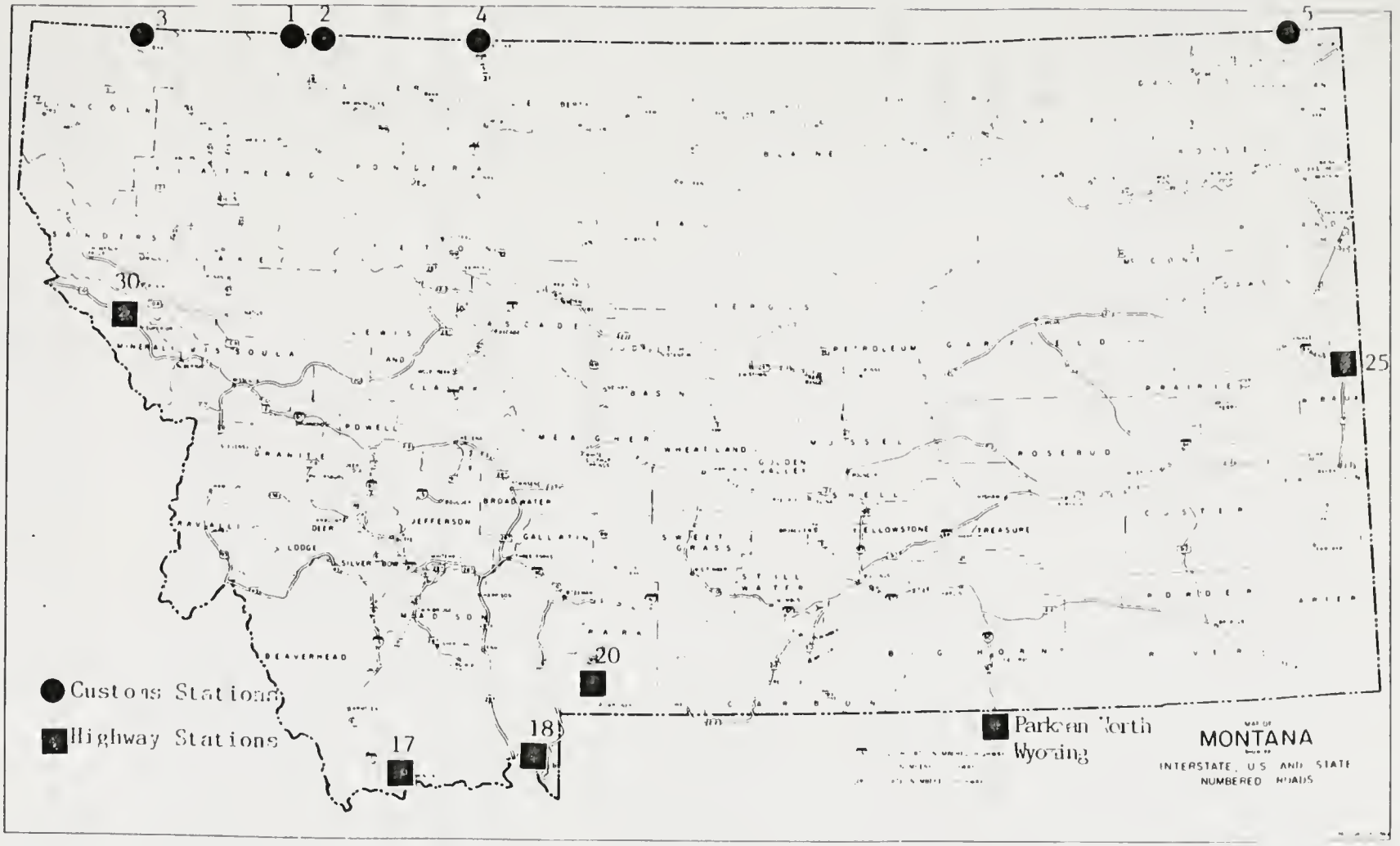
[3]Telephone conversation with Mr. Phil Colbert, Director of Planning, Montana Department of Highways, July 12, 1984.

[4]Telephone conversation with Mr. John Sharone, U.S. Customs Service, Great Falls, July 12, 1984.

Figure 1

Location of Traffic Count Stations



1 -- Chief Mountain
2 -- Piegan
3 -- Roosville
4 -- Sweetgrass
5 -- Raymond

17 -- Lima
18 -- West Yellowstone
20 -- Gardiner
25 -- Wibaux
30 -- Superior

The data in table 1 summarize the number of people who came to Montana by private motor vehicle for the years 1979 to 1983. The greatest number of auto tourists during this period (almost 1.9 million) came in 1981 and 1983. The data show a decline between 1979 and 1980 and in 1982 from 1981. However, the trend was upward, with 1983 showing nearly a 10 percent increase over 1979.

Although most people who come to Montana arrive by automobile, many others come by bus, airplane, or train. The following sections show the derivation of the number of tourists in the study period who arrived by each of these modes of transportation.

Visitors Arriving by Bus. In the 1980 study, Finnie used a ratio of 2.57 buses for each 1,000 vehicles entering the state.[5] We used the same ratio for this study. Since buses are considered commercial vehicles, we used a ratio approach without fear of double counting. Thus, the total incoming traffic for each year was multiplied by .00257 to determine the number of buses. This was then multiplied by 31, because we assumed a 75 percent load factor, to determine the number of incoming bus passengers. These figures were then multiplied by 36.7 percent to determine the number of nonresident visitors who arrived by bus for each of the relevant years.

The number of out-of-state visitors arriving in Montana by bus followed the same pattern as those arriving by automobile, because bus traffic was assumed to be a constant proportion of all traffic. The visitor arrivals

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[5]This is close to Mr. Phil Colbert's (Department of Highways) estimate that .2 percent of all traffic is bus traffic.

Table 1

Estimating the Number of Visitors Arriving by Automobile
Montana, 1979-1983

	1979	1980	1981	1982	1983
	Number of Vehicles Entering Montana				
Lima	227,395	210,970	228,490	233,600	234,330
West Yellowstone	268,823	267,910	295,285	289,445	301,855
Gardiner	159,140	148,190	170,090	170,455	181,770
Wibaux	374,490	382,155	460,265	408,070	387,995
Superior	628,713	592,760	622,690	576,700	643,860
Parkman North	361,715[a]	361,715	387,265	386,170	399,310
Chief Mountain	28,110	36,420	37,381	37,141	36,905
Piegan	75,664	94,278	106,346	97,866	101,708
Roosville	66,086	70,780	75,065	79,984	89,597
Sweetgrass	151,626	141,656	190,226	201,368	172,207
Raymond	43,596	46,927	49,046	51,115	63,612
Total	2,385,358	2,353,761	2,622,149	2,531,914	2,613,149
Percent noncommercial[b]	76.1	76.1	76.1	76.1	76.1
Percent of noncommercial from out-of-state[c]	36.7	36.7	36.7	36.7	36.7
Total out-of-state noncommercial incoming vehicles	666,199	657,375	732,332	707,131	729,819
Number of persons per car[d]	2.56	2.56	2.56	2.56	2.56
Total number of visitors by auto	1,705,471	1,682,880	1,874,770	1,810,254	1,868,335

[a] Estimated.
[b] From 1983 figures, assumed constant, see Appendix B, Tables 1, 2, and 3 for derivation.
[c] From 1983 figures, assumed constant, see Appendix B, Tables 1, 2, and 3 for derivation.
[d] From Old West Survey.

are summarized in table 2. In 1979 nearly 70,000 out-of-staters came to Montana on the bus. By 1983 the number had increased to about 76,400 or an increase of about 10 percent.

Visitors Arriving by Air. The Civil Aeronautics Board uses an origin and destination survey consisting of a 10 percent sample of tickets to estimate total airline passenger traffic.

From the San Mateo, California, office of the CAB we obtained its sample data for flights into and out of each of Montana's commercial airports. To arrive at an estimate of the number of arrivals, we multiplied by ten to account for the 90 percent of tickets not sampled and then divided by two to eliminate departures. These figures were then summed for all airports except West Yellowstone. That airport has a considerable amount of charter traffic which would not be picked up by the ticket sample. To capture this nonsampled traffic, we obtained statistics kept by the Aeronautics Division of the Montana Department of Commerce. These figures were then added to our total which was multiplied by 36.7 percent to derive an estimate of out-of-state visitors arriving by air.

These data are summarized in table 3 and show a pattern of visitors to the state somewhat similar to the automobile traffic flows. There is an exception, however, for 1981. While auto traffic was up in 1981 over the previous years, air traffic dropped off. This may have been a result of the recession which began in that year. During the study period, on the other hand, visitors coming by air showed an upward trend with 1983

Table 2

Estimating the Number of Visitors Arriving by Bus,
Montana, 1979-1983

	1979	1980	1981	1982	1983
Total incoming traffic[a]	2,385,358	2,353,761	2,622,149	2,531,914	2,613,149
Multiplier (2.57 buses per 1,000 vehicles)[b]	.00257	.00257	.00257	.00257	.00257
Number of buses	6,130	6,049	6,739	6,507	6,716
Number of people per bus[b]	31	31	31	31	31
Total number of bus passengers	190,041	187,524	208,907	201,718	208,190
Percent from out-of-state[c]	36.7	36.7	36.7	36.7	36.7
Total number of visitors by bus	69,745	68,821	76,669	74,030	76,406

[a] See table 1 for derivation.
[b] Assumption used by Finnie in the 1980 study.
[c] From Appendix B, Table 3.

Table 3

Estimating the Number of Visitors Arriving by Air, Montana, 1979-1983

Airport	1979[a]	1980	1981	1982	1983
Number of arrivals:					
Billings	155,347	195,140	194,285	240,560	237,435
Butte	40,060	33,960	25,465	27,735	27,910
Helena	43,140	41,200	36,525	43,615	47,715
Bozeman	54,810	53,215	43,140	48,515	58,080
Glasgow	2,380	2,170	3,195	670	925
Glendive	900	1,500	2,030	545	750
Great Falls	121,685	99,125	40,565	115,235	133,455
Missoula	87,950	75,655	63,645	84,175	101,295
Kalispell	42,525	35,405	31,145	33,585	39,390
Havre	675	1,030	995	375	315
Lewistown	460	470	790	210	105
Miles City	740	940	1,110	630	520
Sidney	1,250	2,490	4,325	2,245	1,055
Wolf Point	1,295	1,580	2,400	240	360
West Yellowstone	6,920	9,086	9,086	9,416	13,394
Total	560,137	552,966	458,701	607,751	662,704
Percent out-of-state	36.7	36.7	36.7	36.7	36.7
Total number of visitors by air	205,570	202,939	168,343	223,045	243,212

Note: Data for 1980-1983 were obtained from Mr. John Smith, Civil Aeronautics Board, San Mateo, California, telephone conversation, July 12, 1984. West Yellowstone data obtained from Mr. Michael Ferguson, Aeronautics Division, Montana Department of Commerce.

[a]Derived from Finnie, 1980 study.

showing an increase of over 18 percent over 1979. This was greater than the increase in auto traffic for that same period.

Visitors Arriving by Rail. Amtrak serves eleven passenger railroad depots in Montana with its "Empire Builder." On-boardings and off-boardings for each year of the study period, 1979-1983, were available. We totaled the off-boardings for each station and then multiplied that figure by 36.7 percent to obtain our estimate of the number of out-of-state visitors who arrived in Montana by train (table 4).

The data for rail visitors differ from both the auto and airline data in that they show an increase in passenger arrivals each year of the study period. The percentage increases in rail traffic are also significantly greater than for either air or auto. This is no doubt due to the much smaller base for rail traffic. From 1979 to 1983 out-of-state rail passenger numbers increased from 12,030 to 20,399, nearly 70 percent. Nearly one-third of all these passengers got off the train in Whitefish while nearly one-fifth disembarked at Havre. Although one might suppose that Glacier National Park would be the most popular rail point for tourists, four of the eleven Amtrak stations in Montana accounted for more passengers getting off the train than did Glacier Park.

Total Nonresident Visitors

Table 5 summarizes the number of nonresidents estimated to have visited Montana during the years 1979-1983, by type of transportation.

Table 4

Estimating the Number of Visitors Arriving by Rail, Montana, 1979-1983

	1979	1980	1981	1982	1983
Number of arrivals:					
Wolf Point	2,443	3,041	2,956	3,342	6,131
Glasgow	2,887	3,041	2,898	3,207	3,459
Malta	1,197	1,675	1,949	1,920	2,088
Havre	6,114	7,995	8,635	10,112	10,223
Shelby	2,382	3,431	3,835	4,588	4,824
Cut Bank	1,585	1,217	1,431	1,680	1,741
Browning	56	619	550	825	1,211
Glacier Park	2,902	4,223	4,395	4,730	4,745
Belton	946	1,746	1,900	1,910	1,975
Whitefish	10,777	15,213	16,095	17,115	17,036
Libby	1,489	1,954	1,915	2,107	2,150
Total	32,778	44,155	46,559	51,536	55,583
Percent out-of-state	36.7	36.7	36.7	36.7	36.7
Total number of visitors by rail	12,030	16,205	17,087	18,914	20,399

Note: Amtrak data obtained from Mr. Richard Howell, Montana Department of Commerce.

Table 5

Nonresident Visitors,
Montana, 1979-1983

	1979	1980	1981	1982	1983	Percent Change 1979-1983
Auto visitors	1,705,471	1,682,880	1,874,770	1,810,254	1,868,335	9.5
Bus visitors	69,745	68,821	76,669	74,030	76,406	9.6
Rail visitors	12,030	16,205	17,087	18,914	20,399	69.6
Air visitors	205,570[a]	202,939	168,343	223,045	243,212	18.3
Total	1,992,816	1,970,845	2,136,869	2,126,243	2,208,352	10.8

[a]Estimated from data in Finnie study, 1980.

The total number of nonresident visitors is estimated to have increased by about 11 percent, from under 2.0 million in 1979 to more than 2.2 million in 1983.

Automobile travel is by far the preferred way for people who travel to visit Montana. However, there does appear to be a very slight shift to increasing numbers arriving by train and airplane relative to auto. In 1979, for example 85.6 percent of our visitors arrived by car; in 1983 it was 84.6 percent. The increased proportion was in rail and air travel.

Nonresident Expenditures Per Party Per Day

After we had determined the total number of visitors, we estimated their expenditures.

In 1979 the Old West Regional Commission sponsored a survey of travelers in each state in and of the region. From this survey, we had available average expenditures per day per visitor party by expenditure category. These figures were in 1979 dollars. Since expenditures were broken out by category, we were able to go to the various constituent elements of the Consumer Price Index to adjust the figures for inflation. This allowed us to include in our analysis the above-average increase in the price of gasoline and the below-average increase in restaurant prices. In each case the 1983 CPI was divided by that of 1979. The 1979 expenditures then were multiplied by that value to get the equivalent expenditure in 1983 dollars. This method assumes that the change in relative prices did not change people's consumption patterns.

Tables 6 and 7 show the price inflators and the 1983 values by expenditure category. The category with the greatest price increase was motor fuel (41.72 percent) and the category with the most modest increase was food away from home (31.70 percent). Overall, 1979 expenditures were inflated by 37.12 percent to translate them into 1983 dollars. The expenditure per party day in 1983 dollars was estimated at $92.83.

Total Nonresident Expenditures

To determine total visitor expenditures we multiplied the estimated total number of visitors by 4.77[6], the number of days, on the average, visitors remained in the state in 1979. This provided us with the total number of visitor days. Since the expenditure data we used were based on expenditure per party, rather than per visitor, total visitor days was divided by 2.31[7] to arrive at the total number of visitor party days. This figure was then multiplied by the estimated expenditure per party day ($92.83) to provide an estimate of total expenditures by nonresident travelers in Montana in 1983.

Table 8 summarizes the calculations involved in estimating visitor party days and total expenditures for the years 1979 to 1983. Total expenditures, in constant 1983 dollars, are estimated to have risen from almost $382 million to $423 million between 1979 and 1983. That is an increase of approximately 11 percent. During these years, the U.S. and Canadian economies experienced severe recessions and the value of the

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[6]From the Old West Survey.

[7]Average number of people per party. From the Old West Survey.

Table 6

Inflation of Expenditures from the
1979 Old West Survey to 1983 Dollars

Category	--- Index --- 1979	1983	Inflator
Food away from home[a]	242.9	319.9	1.3170
Motor fuel[b]	265.6	376.4	1.4172
All items (CPI)[b]	217.4	298.4	1.3726

[a]U.S. Bureau of Labor Statistics, CPI Detailed Report, various issues.

[b]Joint Economic Committee, Economic Indicators, May 1984.

Table 7

Expenditures Per Party Per Day From Old West Survey,
Inflated to 1983 Dollars

	1979	Inflator	1983
Hotels and motels	$ 15.64	1.3726	$ 21.47
Campgrounds	1.13	1.3726	1.55
Eating and drinking places	16.72	1.3170	22.02
Food stores	3.58	1.3726	4.91
Sporting goods stores	1.17	1.3726	1.61
Gasoline service stations	18.72	1.4172	26.53
Amusement and recreation services	3.62	1.3726	4.97
Other	7.12	1.3726	9.77
Total	$ 67.70	1.3712	$ 92.83

Note: Based on Table 6.

Table 8

Estimating Total Expenditures by Nonresident Visitors,
Montana, 1979-1983

In Constant (1983) Dollars

	1979	1980	1981	1982	1983	Percent Change 1979-1983
Total number of visitors	1,992,816	1,907,845	2,136,869	2,126,243	2,208,352	10.8
Average number of days spent in state[a]	4.77	4.77	4.77	4.77	4.77	
Visitor days	9,505,733	9,100,421	10,192,865	10,142,179	10,533,839	10.8
Number of people per party[b]	2.31	2.31	2.31	2.31	2.31	
Visitor party days	4,115,036	3,939,576	4,412,496	4,390,554	4,560,103	10.8
Expenditures per party day (1983 dollars)[c]	$92.83	$92.83	$92.83	$92.83	$92.83	
Total expenditures	$381,998,792	$365,710,840	$409,612,004	$407,575,129	$423,314,361	10.8

[a] From Old West Survey.
[b] From Old West Survey.
[c] Inflated from Old West Survey results, see Table 6.

Table 2

Estimating the Number of Visitors Arriving by Bus,
Montana, 1979-1983

	1979	1980	1981	1982	1983
Total incoming traffic[a]	2,385,358	2,353,761	2,622,149	2,531,914	2,613,149
Multiplier (2.57 buses per 1,000 vehicles)[b]	.00257	.00257	.00257	.00257	.00257
Number of buses	6,130	6,049	6,739	6,507	6,716
Number of people per bus[b]	31	31	31	31	31
Total number of bus passengers	190,041	187,524	208,907	201,718	208,190
Percent from out-of-state[c]	36.7	36.7	36.7	36.7	36.7
Total number of visitors by bus	69,745	68,821	76,669	74,030	76,406

[a] See table 1 for derivation.
[b] Assumption used by Finnie in the 1980 study.
[c] From Appendix B, Table 3.

Table 3

Estimating the Number of Visitors Arriving by Air, Montana, 1979-1983

Airport	1979[a]	1980	1981	1982	1983
Number of arrivals:					
Billings	155,347	195,140	194,285	240,560	237,435
Butte	40,060	33,960	25,465	27,735	27,910
Helena	43,140	41,200	36,525	43,615	47,715
Bozeman	54,810	53,215	43,140	48,515	58,080
Glasgow	2,380	2,170	3,195	670	925
Glendive	900	1,500	2,030	545	750
Great Falls	121,685	99,125	40,565	115,235	133,455
Missoula	87,950	75,655	63,645	84,175	101,295
Kalispell	42,525	35,405	31,145	33,585	39,390
Havre	675	1,030	995	375	315
Lewistown	460	470	790	210	105
Miles City	740	940	1,110	630	520
Sidney	1,250	2,490	4,325	2,245	1,055
Wolf Point	1,295	1,580	2,400	240	360
West Yellowstone	6,920	9,086	9,086	9,416	13,394
Total	560,137	552,966	458,701	607,751	662,704
Percent out-of-state	36.7	36.7	36.7	36.7	36.7
Total number of visitors by air	205,570	202,939	168,343	223,045	243,212

Note: Data for 1980-1983 were obtained from Mr. John Smith, Civil Aeronautics Board, San Mateo, California, telephone conversation, July 12, 1984. West Yellowstone data obtained from Mr. Michael Ferguson, Aeronautics Division, Montana Department of Commerce.

[a]Derived from Finnie, 1980 study.

showing an increase of over 18 percent over 1979. This was greater than the increase in auto traffic for that same period.

Visitors Arriving by Rail. Amtrak serves eleven passenger railroad depots in Montana with its "Empire Builder." On-boardings and off-boardings for each year of the study period, 1979-1983, were available. We totaled the off-boardings for each station and then multiplied that figure by 36.7 percent to obtain our estimate of the number of out-of-state visitors who arrived in Montana by train (table 4).

The data for rail visitors differ from both the auto and airline data in that they show an increase in passenger arrivals each year of the study period. The percentage increases in rail traffic are also significantly greater than for either air or auto. This is no doubt due to the much smaller base for rail traffic. From 1979 to 1983 out-of-state rail passenger numbers increased from 12,030 to 20,399, nearly 70 percent. Nearly one-third of all these passengers got off the train in Whitefish while nearly one-fifth disembarked at Havre. Although one might suppose that Glacier National Park would be the most popular rail point for tourists, four of the eleven Amtrak stations in Montana accounted for more passengers getting off the train than did Glacier Park.

Total Nonresident Visitors

Table 5 summarizes the number of nonresidents estimated to have visited Montana during the years 1979-1983, by type of transportation.

Table 4

Estimating the Number of Visitors Arriving by Rail, Montana, 1979-1983

	1979	1980	1981	1982	1983
Number of arrivals:					
Wolf Point	2,443	3,041	2,956	3,342	6,131
Glasgow	2,887	3,041	2,898	3,207	3,459
Malta	1,197	1,675	1,949	1,920	2,088
Havre	6,114	7,995	8,635	10,112	10,223
Shelby	2,382	3,431	3,835	4,588	4,824
Cut Bank	1,585	1,217	1,431	1,680	1,741
Browning	56	619	550	825	1,211
Glacier Park	2,902	4,223	4,395	4,730	4,745
Belton	946	1,746	1,900	1,910	1,975
Whitefish	10,777	15,213	16,095	17,115	17,036
Libby	1,489	1,954	1,915	2,107	2,150
Total	32,778	44,155	46,559	51,536	55,583
Percent out-of-state	36.7	36.7	36.7	36.7	36.7
Total number of visitors by rail	12,030	16,205	17,087	18,914	20,399

Note: Amtrak data obtained from Mr. Richard Howell, Montana Department of Commerce.

Table 5

Nonresident Visitors, Montana, 1979-1983

	1979	1980	1981	1982	1983	Percent Change 1979-1983
Auto visitors	1,705,471	1,682,880	1,874,770	1,810,254	1,868,335	9.5
Bus visitors	69,745	68,821	76,669	74,030	76,406	9.6
Rail visitors	12,030	16,205	17,087	18,914	20,399	69.6
Air visitors	205,570[a]	202,939	168,343	223,045	243,212	18.3
Total	1,992,816	1,970,845	2,136,869	2,126,243	2,208,352	10.8

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The total number of nonresident visitors is estimated to have increased by about 11 percent, from under 2.0 million in 1979 to more than 2.2 million in 1983.

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[6]From the Old West Survey.

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Expenditures Per Party Per Day From Old West Survey,
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Hotels and motels	$ 15.64	1.3726	$ 21.47
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Food stores	3.58	1.3726	4.91
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Other	7.12	1.3726	9.77
Total	$ 67.70	1.3712	$ 92.83

Note: Based on Table 6.

Table 8

Estimating Total Expenditures by Nonresident Visitors,
Montana, 1979-1983

In Constant (1983) Dollars

	1979	1980	1981	1982	1983	Percent Change 1979-1983
Total number of visitors	1,992,816	1,907,845	2,136,869	2,126,243	2,208,352	10.8
Average number of days spent in state[a]	4.77	4.77	4.77	4.77	4.77	
Visitor days	9,505,733	9,100,421	10,192,865	10,142,179	10,533,839	10.8
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Expenditures per party day (1983 dollars)[c]	$92.83	$92.83	$92.83	$92.83	$92.83	
Total expenditures	$381,998,792	$365,710,840	$409,612,004	$407,575,129	$423,314,361	10.8

[a]From Old West Survey.
[b]From Old West Survey.
[c]Inflated from Old West Survey results, see Table 6.

Canadian dollar fell about 6 percent relative to the value of U.S. currency.[8] Both of these phenomena would be expected to have had a negative impact on travel to Montana. It is important to note that in spite of these economic forces there was an upward trend in Montana's tourism industry.

Income from Nonresident Travel Expenditures

Unfortunately, not all the money spent by visitors in Montana stays in Montana. Table 9 shows how a personal income multiplier was derived for travel expenditures. Where possible, a ratio of earnings to expenditures (or receipts) was calculated using preliminary 1982 Census of Business data. For industries where data were not available, ratios developed by Polzin and Schweitzer were used. The calculations in Table 9 suggest that about $25 of each $100 spent in Montana by people from out-of-state is destined as income to the proprietor or employees of the firms at which it is spent. The income figure is properly referred to as labor income or earnings and represents wages and salaries plus certain fringe benefits as well as proprietors' income.

Because of the nature of our model and a lack of more precise measurement techniques we were forced to assume that the other 75 percent of the dollars spent leaked from the system.

The total expenditures derived in table 8 were multiplied by the .2501 expenditure multiplier to determine labor income. The results appear in table 10. Again, all income figures are in 1983 dollars. Thus we estimate that about $96 million accrued to Montanans as labor income in 1979 and

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[8] On September 28, 1979, the Canadian dollar was valued at U.S. $.8622. By September 30, 1983, it had fallen to U.S. $.8122. Wall Street Journal.

Table 9

Estimating Labor Income from Expenditures

SIC	Industry	Percentage of Total Expenditures[a]	Labor Income (including Proprietors') per Dollar of Receipts		Weight
			Polzin[b]	New[c]	
7011	Hotels and motels	23.1	.30	.3606	8.3299
7032	Campgrounds	1.7	.27	N/A	0.4590
58	Eating and drinking places	24.7	.27	.3717	9.1810
54	Food stores	5.3	.10	N/A	0.5300
5941	Sporting goods stores	1.7	.15	N/A	0.2550
5541	Gasoline service stations	27.7	.11	.0705	1.9529
79	Amusement and recreation services	5.4	.31	N/A	1.6740
	Other	10.5	N/A	.2501	2.6261
				Total	25.0079
				Ratio, labor income to expenditures:	.2501

[a]Old West Survey.
[b]Polzin, Paul E., and Schweitzer, Dennis L., Economic Importance of Tourism in Montana, U.S.D.A. Forest Service, Research Paper INT-171, July 1975.
[c]Estimated from U.S. Bureau of the Census, 1982 Census of Retail Trade, Preliminary Report, and U.S. Census of Service Industries, Preliminary Report, unpublished data from U.S. Bureau of Economic Analysis, Regional Economics Information System.
[d]Data are for sporting and recreation camps.
[e]Estimated from the sources listed in c above and Robert Morris Associates, Annual Statement Studies, June 30, 1982 to March 31, 1983. Average profit before taxes in U.S. service stations with sales less than one million dollars equals 1.5 percent. See page 287.

Note: Weights derived by multiplying percentage of total expenditures by new ratio of earnings to receipts where available and Polzin ratio in all other cases.

Table 10

Labor Income from Nonresident Travel Expenditures, Montana, 1979-1983

(In Constant 1983 Dollars)

	Total Expenditures	Labor Income[a]
1979	$ 381,998,792	$ 95,537,898
1980	365,710,840	91,464,281
1981	409,612,004	102,443,962
1982	407,575,129	101,934,540
1983	423,314,361	105,870,922

[a]Income estimated to equal 25.01 percent of expenditures, per table 9. Labor income includes wages and salaries, certain fringe benefits, and proprietors' income.

about $106 million in 1983. Both figures are in 1983 dollars. Once again, the increase amounted to about 11 percent.

Nonresident Expenditures and Labor Income from Nonresident Travel by Type of Travel

People travel for many different reasons. The Old West Commission Survey reported that nonresident visitors to Montana in 1979 visited the state for a number of reasons, in the following proportions:

Purpose of Trip	Percent of Total Trips
Tourism	30
Visiting friends and relatives	23
Business	20
Passing through	27
Total	100

Tourist travel is presumed to be travel for pleasure. Applying the 30 percent figure from the above table to total expenditures indicates that nonresident tourists traveling for pleasure spent about $127 million in Montana in 1983, thereby creating $32 million in labor income for Montanans (table 11).

If one assumes that visiting friends and relatives might also be classified as pleasure travel, and therefore tourism, then expenditures amount to $224 million and income to $56 million.

The balance, $199 million in expenditures and $50 million in income, is attributed to business travelers and those passing through the state.

The same method was used to estimate 1979 expenditures and labor income by purpose of trip (table 11).

A note of warning about computing rate of growth by purpose of trip from table 11: differences are due to rounding and should not be quoted. All

Table 11

Labor Income from Nonresident Travel Expenditures, by Purpose of Trip, Montana, 1979 and 1983

(In Millions of Constant 1983 Dollars)

	Expenditures		Labor Income	
	1979	1983	1979	1983
Total	382	423	96	106
Tourism (pleasure trips)	114	127	29	32
Visiting friends and relatives	88	97	22	24
Subtotal	202	224	51	56
All other[a]	180	199	45	50

[a]Includes business and other travel.

figures in the breakdown were derived using the same ratios and if numbers were not rounded, the percentage increases would all be the same, 10.8 percent.

Resident Expenditures for Travel in Montana

The results we have reported to this point are for nonresident travel in Montana. We emphasize nonresident travel because that portion of the travel industry is part of the economic base -- that is, it brings in money from out-of-state. To complete the picture of the travel industry, it is necessary to include the expenditures made by Montana residents on travel within their state.

This is a very difficult task. There are few guideposts and almost no data. The figures which follow are merely ballpark estimates. The methodology is described in some detail so that readers will understand how rough the estimates are. Estimates were prepared only for 1979 and 1983.

According to the U.S. Travel Data Center, Americans spent $858 per capita in travel in the United States in 1982. (Total expenditures: $199 billion; total population: 231,786,000).

The figure of $858 was inflated by 3.6 percent to obtain a 1983 estimate of $890.[9] But Montanans, with lower per capita incomes than the U.S. average, may spend less than the typical American on travel. In 1983, per capita income in Montana was 86 percent of the U.S. figure.[10] Eighty-six percent of $890 is $765.

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[9]Based on changes in components of the CPI between 1982 and 1983 as follows: food away from home, 4.37 percent; motor fuel, -3.34 percent; all items, 3.22 percent. Calculated as in tables 6 and 7.

[10]U.S. Bureau of Economic Analysis, Survey of Current Business, August 1984.

For purposes of estimating travel expenditures by Montana residents in 1983, we used a per capita figure of $765 and multiplied it by 817,000, the midyear population estimate from the Bureau of the Census, to arrive at an estimate of $625 million in total travel expenditures by Montana residents in 1983.

As noted above, the Old West Commission Survey reported that 30 percent of nonresident visitors to Montana in 1979 were pleasure trips. For want of better information, we have assumed that 30 percent of Montanans' travel also is for pleasure. This means that of Montanans' travel expenditures, some $188 million in 1983 is attributable to pleasure travel and $437 million to business and other travel. Of course, not all pleasure travel by Montanans is in-state. There is almost no information available to indicate how Montanans divide their travel between Montana and other states. The Montana Poll, in September 1981 and March 1982, asked respondents about the principal destination of the major trip they had taken in the past six months. Fifty-two percent named a Montana destination. We applied the 52 percent to our estimate of tourist travel expenditures ($188 million) to obtain an estimate of spending by Montanans in Montana for tourist travel. The result was $98 million.

This is a conservative figure, since over half (54 percent) of the Poll respondents had taken more than one trip. Even if the major trip reported was not in-state, it is likely that some of the other trips were.

We had no evidence as to how much of Montanans' nontourist travel (including business travel) occurs in-state. We assumed, because it seemed reasonable, that two-thirds of all other travel Montanans do takes place

in-state. Multiplying the $437 million estimated total "all other" travel expenditures by 0.67 yielded an estimate of $293 million spent in-state. Total travel expenditures by Montanans in Montana, then, are estimated at $391 million in 1983 (table 12).

Following the same procedure for 1979, we divided the estimated total expenditures by U.S. residents traveling in the U.S. ($140.7 billion) by 1979 resident population (224.6 million) to obtain a per capita expenditure figure of $626. We inflated that figure by 1.3712 (per table 7) to translate it into 1983 dollars. That resulted in a $858 per capita figure. We then reduced our Montana per capita estimate to .87 percent of $858, or $746, to reflect Montanans' lower per capita income that year. We multiplied the $746 by 789,000 midyear population and arrived at a total travel expenditure estimate of $588 million in 1979 (expressed in 1983 dollars).

We then broke that figure down into tourist and other, in-state and out-of-state estimates as described above. The results were $366 million total travel expenditures by Montanans in Montana in 1979 (expressed in 1983 dollars). The figure for tourist (pleasure) travel was $92 million and all other, $274 million.

Income from Resident Travel

According to our estimates, total expenditures by Montanans traveling in-state for all purposes in 1983 amounted to $391 million. If we apply the .2501 ratio of personal income to expenditures, this represents $98 million in personal income (wages and salaries and proprietors' income) generated by Montanans traveling around Montana that year.

For 1979, the comparable figure was $92 million (in 1983 dollars).

Total Travel Expenditures and Total Labor Income from Travel

All travelers in Montana -- resident and nonresident -- are estimated to have spent $814 million in the state in 1983 (table 12). Total labor income attributable to the expenditures is $204 million (table 13). For 1979, the comparable figures were $748 million in expenditures and $188 million in labor income.

Of the total expenditures and income the amounts generated by nonresident travel may be regarded as contributions to the economic base. Thus in 1983, travel is estimated to have added $423 million to out-of-state sales by Montana's basic industries, thereby creating $106 million in basic labor income. Those figures were $382 million and $96 million respectively in 1979, expressed in 1983 dollars.

The increase in total labor income attributable to travel between 1979 and 1983 amounted to 9 percent after adjusting for inflation (table 13).

Checking the Expenditure Figures

Travel data are notorious for errors and inconsistencies. Anyone involved in estimating or using travel expenditure and related data is rightly concerned about accuracy.

There are few ways of determining accuracy, but we offer the following as a rough check on the total travel expenditure estimates.

The Preliminary Reports of the 1982 Census of Retail Trade and 1982 Census of Service Industries report the following receipts for hotels and motels, eating and drinking places, and gasoline service stations in Montana in 1982.

Table 12

Total Travel Expenditures in Montana
1979 and 1983

(In Millions of Constant 1983 Dollars)

	1979	1983	Percent Change
Total	$ 748	$ 814	9
Nonresident	382	423	11
Tourism	114	127	11
All other[a]	268	296	11
Resident	366	391	7
Tourism	92	98	7
All other[a]	274	293	7

[a]Includes visiting friends and relatives, business, and all other travel.

Table 13

Total Labor Income Generated by Travel,
Montana, 1979 and 1983
(In Millions of Constant 1983 Dollars)

	1979	1983	Percent Change
Total	$ 188	$ 204	9
Nonresident travel	96	106	10
Resident travel	92	98	7

Industry	1982 Receipts	Price Adjustment
Hotels and motels	$ 156,441,000	$ 161,478,000
Eating and drinking places	392,529,000	409,683,000
Gasoline service stations	399,439,000	386,098,000
Total	$ 948,409,000	$ 957,259,000

The figures were adjusted according to changes in the Consumer Price Index to obtain a rough estimate of 1983 receipts. Our estimate of total travel expenditures in Montana in 1983 is $814 million. If we apply the percentage of breakdown of expenditures from the Old West Commission Survey (table 9), to that total we arrive at expenditures per industry as follows:

	Total	Nonresident
Hotels and motels (23.1%)	$ 188,000,000	$ 98,000,000
Eating and drinking places (24.7%)	201,000,000	104,000,000
Gasoline service stations (22.7%)	185,000,000	96,000,000
Total	$ 574,000,000	$ 298,000,000

It is obvious at first glance that the hotel and motel expenditure figures exceed estimated receipts of hotels and motels in 1983. But some of the difference -- perhaps all -- is because our expenditure estimates for hotels and motels are for lodging only. Some of the expenditures attributed to eating and drinking also were made in hotels. The total expenditure figure for the three industries, $574 million, is equal to 60 percent of their total receipts. That is, our estimates of expenditures by nonresident and resident travelers account for 60 percent of the estimated total receipts of these three heavily travel-oriented industries. Nonresident expenditures alone amounted to 31 percent.

Although the percentage breakdown of expenditures appears inaccurate, our estimates of total expenditures for these three industries do seem reasonable.

Employment

In 1983, wage and salary workers in retail trade in Montana earned an average of $9,126. Service employees earned an average of $12,220.[11] We weighted these averages according to the expenditure distribution in table 9. That is, .302 for services (hotels, motels, campgrounds, amusement places) and .698 for retail trade. This provided an average earnings figure of $10,059 rounded to $10,100. It probably is high for wage and salary workers in travel industries because their earnings tend to be among the lowest in trade and services. But we are dealing with all workers (including the self-employed) and with labor income (which includes fringe benefits and proprietors' income.)

Dividing total labor income generated by travel ($204,000,000) by average annual earnings ($10,100) provides an estimate of 20,200 workers in travel-related industries in 1983 (table 14). Of that number 10,500 jobs are attributable to nonresident travel ($106 million ÷ $10,100) and 9,700 to resident travel ($98 million ÷ $10,100).

The same process was followed to obtain estimates for 1979 (table 14).

The number of jobs in the travel industry increased more rapidly than travel expenditures or labor income, 15 percent between 1979 and 1983. One reason appears to be that employees are working fewer hours per week in 1983 than in 1979. Montana Department of Labor and Industry figures show that workers in wholesale and retail trade worked an average of 30.9 hours per

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[11]Calculated from U.S. Bureau of Economic Analysis data.

Table 14

Travel-Related Employment,
Montana, 1979 and 1983

	1979	1983	Percent Change
Total	17,600	20,200	15
Nonresident	9,000	10,500	17
Resident	8,600	9,700	13

week in 1983 compared to 33.9 hours in 1979. Service workers put in an average of 30.7 hours per week in 1983 and 34.0 hours in 1979.

The Travel Industry at the County Level

In addition to looking at statewide expenditures, income, and employment, we wanted to get some idea of the importance of the travel industry to Montana's counties.

Tables 15 and 16 list the counties with more than one percent of their total employment or total labor income in hotels and motels. In general, counties located near the two national parks and some of the smaller counties in the state appear to be the most dependent upon travel.

The figures are for 1982; no later data are available as of November 1984. It should be noted that labor income provides the better measure of the importance of hotels and motels because it includes estimates of income of the self-employed. The hotel and motel employment figures, on the other hand, include only wage and salary workers. No estimates of the number of self-employed are available.

Tables 17 and 18 list the counties where hotel and motel employment and income (and presumably travel activity) are concentrated. There is a great deal of concentration. Four counties -- Yellowstone, Gallatin, Flathead, and Cascade -- accounted for almost half the total state labor income and employment from hotels and motels in 1982. Four additional counties -- Silver Bow, Missoula, Glacier, and Lewis and Clark -- accounted for another one-fourth.

Because of the interest in the importance of travel and tourism to local economies, we have estimated total travel-related employment by county, using hotel/motel employment as a proxy. Once again, a caution that the figures are very rough is appropriate.

Table 15

Counties With One Percent or More of Total Employment in Hotels and Motels, Montana, 1982

Rank		Percent
1	Glacier	7.8
2	Park	4.1
3	Flathead	3.4
4	Gallatin	3.4
5	Beaverhead	3.4
6	Madison	3.2
7	Silver Bow	3.1
8	Wheatland	3.0
9	Dawson	2.8
10	McCone	2.1
11	Sheridan	2.0
12	Roosevelt	1.9
13	Richland	1.8
14	Powell	1.8
15	Yellowstone	1.8
16	Phillips	1.8
17	Jefferson	1.7
18	Fergus	1.7
19	Cascade	1.6
20	Custer	1.6
21	Lewis and Clark	1.5
22	Missoula	1.3
23	Valley	1.2
24	Lincoln	1.2
25	Hill	1.1
26	Sweet Grass	1.1
27	Meagher	1.1

Source: U.S. Bureau of Economic Analysis, Regional Economic Information System, unpublished data, April 1984.

Table 16

Counties With One Percent or More of Total Labor Income from Hotels and Motels, Montana, 1982

Rank		Percent
1	Glacier	4.6
2	Park	3.7
3	Madison	2.8
4	Gallatin	2.3
5	Flathead	1.9
6	Sweet Grass	1.8
7	Silver Bow	1.8
8	Beaverhead	1.8
9	Wibaux	1.5
10	McCone	1.5
11	Fergus	1.3
12	Wheatland	1.3
13	Dawson	1.3
14	Phillips	1.2
15	Powell	1.1
16	Roosevelt	1.1
17	Cascade	1.0
18	Jefferson	1.0
19	Sheridan	1.0

Source: U.S. Bureau of Economic Analysis, Regional Economic Information System, unpublished data, April 1984.

Table 17

Counties With One Percent or More of Total State Hotel and Motel Employment, Montana, 1982

Rank		Percent
1	Yellowstone	15.4
2	Gallatin	11.2
3	Flathead	10.8
4	Cascade	9.2
5	Silver Bow	6.8
6	Missoula	6.6
7	Glacier	6.5
8	Lewis and Clark	5.0
9	Park	3.3
10	Dawson	2.9
11	Richland	2.0
12	Beaverhead	1.9
13	Custer	1.5
14	Hill	1.5
15	Roosevelt	1.5
16	Fergus	1.4
17	Madison	1.2
18	Lincoln	1.1
	All other	10.2
	Total	100.0

Source: U.S. Bureau of Economic Analysis, Regional Economic Information System, unpublished data, April 1984.

Table 18

Counties With One Percent or More of
Total State Labor Income From Hotels and Motels,
Montana, 1982

Rank		Percent
1	Yellowstone	15.9
2	Gallatin	11.0
3	Flathead	10.2
4	Cascade	10.0
5	Silver Bow	7.7
6	Glacier	6.9
7	Missoula	6.1
8	Lewis and Clark	5.6
9	Park	4.3
10	Dawson	2.5
11	Richland	1.9
12	Beaverhead	1.5
13	Fergus	1.4
14	Custer	1.3
15	Hill	1.3
16	Madison	1.1
17	Roosevelt	1.1
18	Lincoln	1.0

Source: U.S. Bureau of Economic Analysis, Regional Economic Information System, unpublished data, April 1984.

Statewide travel-related employment, as noted above, is estimated at 20,200 in 1983. In 1982, there were 6,800 wage and salary workers employed in hotels and motels in the state of Montana.[12] From this we can draw the tenuous inference that there are about two other jobs ($\frac{20,200}{6,800} = 3$) directly related to travel for each wage and salary job in the hotel sector. If we assume that hotel and nonhotel travel jobs are dispersed evenly throughout the state, we can simply multiply the number of hotel jobs in each county by three to get some idea of the total number of travel-related jobs in each county.

Table 19 indicates that there are 18 Montana counties with more than 3 percent of their work force in travel-related employment. In fact, in five counties roughly 10 percent or more of the work force is dependent on the travel-tourism industry. Once again, they are counties located near the national parks -- Glacier, Park, Flathead, Gallatin, and Beaverhead. As one would expect, Glacier County has the greatest proportion of travel workers, nearly one-fourth of the total. This is a result of the location of the county and the nature of its economy.

Although Yellowstone has the state's largest number of travel jobs of any county, its total employment is not so heavily weighted towards the travel industry. This is because its economy is larger and more diverse, making it less travel dependent than a county such as Glacier.

Gasoline Taxes

There is a great deal of interest in how much out-of-state travelers pay in gasoline and other fuel taxes when they travel in Montana. This

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[12]U.S. Bureau of Economic Analysis.

Table 19

Travel-Related Employment in Counties with One Percent or More of Total State Travel Employment, Montana, 1982

		Number of Travel Jobs in County	Percent of State Travel Employment in County	Percent of County Employment Which is Travel Related
1	Yellowstone	3,095	15.4	5.3
2	Gallatin	2,251	11.2	10.0
3	Flathead	2,171	10.8	10.1
4	Cascade	1,849	9.2	4.9
5	Silver Bow	1,367	6.8	9.2
6	Missoula	1,327	6.6	3.9
7	Glacier	1,306	6.5	23.0
8	Lewis and Clark	1,005	5.0	4.3
9	Park	663	3.3	12.0
10	Dawson	583	2.9	8.4
11	Richland	402	2.0	5.2
12	Beaverhead	382	1.9	9.9
13	Custer	302	1.5	4.7
14	Hill	302	1.5	3.4
15	Roosevelt	302	1.5	5.8
16	Fergus	281	1.4	4.9
17	Madison	241	1.2	9.5
18	Lincoln	221	1.1	3.6
	All other	2,150	10.2	NA
	Total	20,200	100.0	5.5

Source: Based on data from U.S. Bureau of Economic Analysis, Regional Economic Information System, unpublished data, April 1984.

is the only means the state has of collecting something from visitors for their share of road and highway maintenance.

During the summer of 1979 the average price of gasoline in Montana rose from 86.5¢ to 97.0¢. If we assume an average price for the year of 95¢[13] we can divide this into the $18.72 which the Old West Survey determined that the average visitor party spent per day at service stations. If all of this represents expenditures for motor fuel, it comes to 19.7 gallons per day. In 1979, Montana levied a 9¢ per gallon gasoline tax. This means that the average visitor party spent $1.77 per day on the state fuel tax. If the 666,199 cars which entered the state in 1979 stayed an average of 4.77 days, the state collected $5,624,652 in fuel tax from visitors. This is $7,971,257 in 1983 dollars (using the inflator from table 7).

By the summer of 1983 the Montana price of gasoline had risen to about $1.25 a gallon -- in part reflecting the higher state tax of 15¢ per gallon -- while total statewide sales had dropped from the 1979 level of 519,822,755 gallons to 434,779,599[14] gallons. This is a decline of 16 percent. If we reduce the 19.7 gallons consumed per day in 1979 by this percentage we arrive at a figure of 16.5 gallons per visitor party per day for 1983. If the 729,810 visitor autos stayed the same 4.77 days, they paid a total of $8,633,360 in fuel tax to the state of Montana. In 1983 dollars this represents an increase of about $660 thousand in increased fuel tax collections to the state.

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[13]Estimated from data published by the American Automobile Association.

[14]Montana Petroleum Association, year-end reports.

Other State and Local Taxes

Input-output analysis is the only method available for estimating the value of state and local taxes (other than gasoline) that are generated by travel and tourism expenditures. We had available to us the Montana Input-Output Model (MIOM) from Montana State University. In 1983, out-of-state visitors spent about $423 million in Montana and this amount was then used as the basis for estimating the level of taxes that those expenditures would generate. The model estimated that $423 million in expenditures would create an additional $14.3 million in state income taxes and an additional $22.5 million in property taxes in 1983. However, we have reservations about these tax figures because the income and expenditure relationships built into the model are based on national income and expenditure patterns. For these estimates to be completely reliable the relationships would need to be adjusted for Montana patterns of income and expenditures. However, the MIOM does provide a means of observing the relationship between expenditures by out-of-state travelers and increased state and local taxes.

Capital Formation

There is considerable interest in the rate of capital formation by businesses in the travel industry. Business formation and expansion of existing firms, along with job creation, are an important contribution to economic growth. Data that can be used to measure capital formation, however, are extremely difficult to obtain. The only relevant data available for Montana have to do with the number of firms in the various sectors of the travel industry. A comparison of the number of these firms, their sales, and their payroll over a period of time provides some measure of

Table 20

Estimates of Taxes Attributable to Nonresident Travel Activity, Montana, 1983

Gasoline tax	$ 8,600,000
State income tax	$ 14,300,000
Property taxes	$ 22,500,000

the trends that may be taking place in the industry. If, for example, the number of establishments is increasing it indicates that some form of capital expenditure is taking place. An increase in the number of employees in an industry with a decline in the total number of firms would indicate that firms are increasing in size.

The data in table 21 provide some comparisons for 1977 and 1982, from the last two Census of Business reports. The employment data are not comparable to other employment figures in this report.

The five industry sectors listed in the table are considered as heavily travel dependent. Restaurants and lunchrooms and refreshment places increased in number of units as well as in number of employees, gross sales, and payroll from 1977 to 1982. In fact, these two sectors had a combined increase of 3,614 or nearly 30 percent in employees. On the other hand, bars and lounges serving alcoholic beverages showed a loss of 48 establishments, while the number of employees increased by 8 percent. This would suggest that the small less competitive firms are going out of business, existing firms are expanding and new bars and lounges are larger. In 1977 these firms averaged five employees and by 1982 the typical bar or lounge had about six workers.

Not surprisingly gasoline service stations declined in both number of firms and number of employees between 1977 and 1982. Both gross sales and payroll expenses, however, increased more rapidly than the rate of inflation indicating that the remaining businesses were likely in a stronger financial position.

Table 21

Selected Characteristics of Travel-Related Industries,
Montana, 1977 and 1982

Industry	1977				1982				Percent Change	
	Number of Establishments	Number of Employees[a]	Sales ($1,000)	Payroll ($1,000)	Number of Establishments	Number of Employees[a]	Sales ($1,000)	Payroll ($1,000)	Number of Establishments	Number of Employees
Restaurants and lunchrooms SIC 5812 A	636	8,359	120,722	32,950	687	10,114	183,376	49,458	8.0	21.0
Refreshment places SIC 5812 B	408	4,059	61,085	14,372	505	5,918	110,808	25,381	23.8	45.8
Drinking places (alcoholic beverages) SIC 5813	719	3,671	74,617	14,459	671	3,950	98,345	19,636	-6.7	7.6
Gasoline service stations SIC 5541	752	3,195	249,027	18,853	528	2,923	399,439	22,171	-29.8	-8.5
Hotels, motor hotels, motels SIC 7011	458	5,757	93,902	24,275	433	6,615	156,441	40,637	-5.5	14.9

Sources: U.S. Bureau of the Census, Preliminary Reports, 1982 Census of Retail Trade and 1982 Census of Service Industries.

[a]For pay period including March 12.

The hotel industry in Montana had a loss of 25 establishments from 1977 to 1982, but an increase of 858 employees. The smaller "mom and pop" motels have been going out of business for a variety of reasons while those with a stronger capital base have been expanding. New hotels and motels are likely to be larger firms, usually employing over 50 people.

The sales and payroll figures included in table 21 have not been adjusted for inflation. In all cases, the increase in sales is substantially higher than the rates of inflation shown in table 7, indicating increased volume.

IV. Review of Literature

An extensive review of economic research in the tourism industry was conducted in an effort to determine the appropriate methodology for this project. A total of 32 studies from 28 different states and one Canadian province were included in the review. In addition, a computerized literature search was performed at the Mansfield Library at the University of Montana. The computer search used key words to examine nationwide four data bases to find other studies or publications that may have been useful for this project.

Following is an annotated bibliography of the publications reviewed for this study. Table 22 at the end of this section contains a summary of the multipliers that were developed or used in the articles that were reviewed for this research.

The Economic Impact of Tourism in Montana
Bruce Finnie
unpublished mimeograph, 1980

I. Conclusions: In 1979, 3.5 million visitors came to the state. They spent close to half a billion dollars and generated 10,000 jobs. Resident travel expenditures were estimated at about $400 million. Combined, this resulted in slightly over 20,000 jobs and $172 million in income.

II. Methodology: Much of the data for this study came from the

Helena firm of Western Analysis, Inc., much of which was based on a survey that was done by the Old West Regional Commission. This survey determined why people came to the state, how they got here, the average number of people per party, and the amount each party spent per day, by expenditure category. Major conclusions of this survey were that the average party of 2.31 people spent $67.70 per day for 4.77 days in Montana.

Traffic data came from the Planning Division of the Montana Department of Highways. This was broken down into resident and nonresident traffic by calendar quarter. The final figure was 14,284,967 automobile visitor days.

For air traffic, the numbers were provided by the U.S. Civil Aeronautics Bureau (415-876-2676). Finnie multiplied this total by .2824 which is the ratio of nonresident to total auto traffic. This was then multiplied by the average length of stay to get 1,509,061 air days.

For rail traffic, an estimate of 53,381 nonresident passengers in 1979 was multiplied by 4.77 to derive a total of 254,627 rail visitor days.

For bus traffic, Finnie used the 1977 Census of Transportation conclusion that 3.66 percent of auto traffic is by bus to check the border count of 35.4 busses per day. Assuming 75 percent capacity and 28.24 percent nonresident, he calculated 522,830 bus visitor days each year.

This gives a total of 16,571,485 visitor days. This was multiplied by the average per visitor day expenditure of $29.31 for a total nonresident yearly travel expenditure of $485,666,470. This was multiplied by .1775 to convert expenditures to income. The total income figure was $86,205,798.

This total income was divided by $8,464, the average wage in trade and services, to get 10,185 jobs. The Old West Survey estimated that 52.37 percent of travel is defined as tourism which gives a final figure of 5,334 jobs from nonresident tourism.

III. Resident Model: A figure of $500 per annum expenditure on travel was provided by the U.S. Travel Data Center (1976 estimate inflated to 1979 dollars). Thus the total resident travel expenditure can be estimated by multiplying $500 by the state's population. This gives $392 million. Next this was multiplied by a conversion factor of .219 (this comes from the Travel Data Center). Thus total income from resident tourism was estimated to be $85,848,000. The 1977 Census of Transportation determined that 30 percent of all travel could be defined as tourism. These dollar amounts for travel and tourism are then divided by the average wage in trade and services to get the number of jobs from resident travel and tourism.

Resident and nonresident travel are summed to arrive at a total of 20,328 jobs.

These jobs were then allocated to the various counties. This was done by dividing the number of motel/hotel jobs in each county (from the Department of Community Affairs, Research Division) by the state total of motel/hotel jobs. This was then multiplied by the 20,328 total to get travel jobs per county.

IV. Taxes: The total income estimate for tourism (resident and nonresident) was multiplied by .0395 to get the personal income tax contribution.

The survey had an estimate of $80.36 spent on gasoline by the average nonresident party during its stay in the state. This was divided by price per gallon to get gallons which was then multiplied by nonresident

cars per day, days in year, and tax per gallon. The resident gas tax from tourism was derived by subtracting the nonresident from the total and multiplying the remainder by .30.

Economic Importance of Tourism in Montana
Paul E. Polzin and Dennis L. Schweitzer
Forest Service, U.S. Department of Agriculture, 1975

I. Conclusions: About one-fourth of each dollar spent accrues to Montanans as income -- this ratio is somewhat less for outdoor-oriented activities. This results in about $33 million in direct income.

II. Methodology: Polzin and Schweitzer used a ratio approach to manipulate traffic flow data obtained from the Montana Department of Highways and from other studies. Much of their methodology was based on the 1966 *Montana Travel Study* by Robert Wallace and Daniel Blake. They first broke expenditures into the categories of lodging, food, transportation, and "all other." They then divided tourists into four types: campers, fishermen, hunters, and the all-inclusive "average tourist." From there they "guesstimate" the expenditure breakdowns for each of these types. From the 1967 Census of Business they got "earnings per dollar of receipts" for the various expenditure types. It was then a matter of summing the products of the proportions spent and the earnings per dollar of each category. The total number of tourists came from the Highway Department counts and from sales of nonresident hunting and fishing licenses. The estimate for campers came from the Wallace-Blake study. The Highway Commission estimated that the average 1971 visitor spent $40 per day. Polzin and Schweitzer estimated that campers spent 60 percent of this figure, fishermen 150 percent, and hunters 200 percent.

Montana Travel Study
Robert F. Wallace and Daniel R. Blake
Bureau of Business and Economic Research, School of Business Administration, University of Montana, 1966

This study was based on a survey of people in lodging facilities and at state borders from July 1963 to August 1964. Questions included the month in which the vacation was planned and which family members made the decision to visit Montana as well as the factors which affected that decision. Separate hunting and fishing surveys were conducted. They did not convert expenses to income.

Minnesota's 1978 Tourist-Travel Industry
The Research Division, Department of Economic Development
State of Minnesota, 480 Cedar Street, St. Paul, MN 55101, 1979

A compilation of data consisting of: lodging receipts, customs reports, licenses, traffic counts, park attendance, and car rental receipts.

The Impact of Travel on the Oregon Economy and Visitor Use of Tourist-Serving Facilities
Marvin Clement, Keith E. Yandon, and William A. Reardon
Battelle Pacific Northwest Laboratories, Richland, WA 99352, 1973

This used a stop-traffic survey. Questionnaires were also sent to a sample of hotel/motel operators. A gift valued at $20 for those who returned diary data contributed to a 40 percent response rate. The model used input/output analysis which developed an income multiplier of 1.42, but then discussed an "induced" expenditure: "When this type of effect is taken into account, the effective multiplier becomes about 3.2 . . ." If indirect expenditure is secondary, then induced expenditure is tertiary.

Ohio's Hidden Asset -- Travel and Tourism in the Buckeye State
Ohio Travel Council, Inc., and Laventhol and Horwath
1978

Used county and the travel economic impact model developed by the U.S. Travel Data Center.

1979 Vacation Travel by Canadians in the United States
Travel Data International
Canadian Government Office of Tourism, United States Travel Service, 1980

This report discusses how they got here, when they came, where they went, why they came back, etc. There is no discussion of economic impact.

Colorado Ski and Winter Recreation Statistics, 1982
Charles R. Goeldner and Karen Duea
Business Research Division, Graduate School of Business Administration, University of Colorado, Boulder, CO, 1983

Seventy-eight pages of detailed statistics before the chapter on economic impact of skiing. The authors used an income multiplier of 2.0 from Peckett, Margaret S. and Dan M. Bechter: "Skiers: Their Local Economic Impact," *Monthly Review*, FRB of Kansas City, June 1972.

The Economic Impact of Travel on Tennessee Counties, 1979
U.S. Travel Data Center
Tennessee Department of Tourist Development, 1980

The study was done by U.S. Travel Data Center and used the "Travel Economic Impact Model" which is available from USTDC. The report showed that about 1.4 percent of tourist expenditures went to local taxes. Data were from the 1977 National Travel Survey. Only direct expenditures were considered.

Study of Economic Benefit of Vermont's Travel Industry, August 1979
Laventhol and Horwath
State of Vermont Agency of Development and Community Affairs, 1979

This study used USTDC's TEIM (above). Multipliers ranged from 1.65 to 2.26 (income) and 1.45 to 2.32 (employment). These are included in a several-page discussion on multiplier determination. Data on receipts by SIC came from state agencies.

Colorado Travel and Tourism Statistics, 1980
Business Research Division, Graduate School of Business Administration
University of Colorado, Boulder, CO, 1980

(Chapter XIV "Economic Impact of Travel," page 36.) Colorado commissioned the USTDC, which used TEIM and tax receipts, to produce a county-by-county breakdown which was similar to the Tennessee study.

1972-1979 South Carolina Travel and Tourism Data
South Carolina Department of Parks, Recreation and Tourism

This study reported data only. It does have per person per day expenditures, but they are not broken down into expenditure categories.

Appendix A: Estimating the Impact of Travel Expenditures for the Michigan Economy
John Mattila
unpublished mimeograph, about 1977

Used data from U.S. Travel Data Center for per person per diem expenditures. Used a multiplier of 1.78 from the National Tourism Resources Review and an employment multiplier of 1.48.

West Virginia Travel 1977-1978
Patricia E. Goeke
Governor's Office of Economic and Community Development

This was a survey of lodging facilities. It also reports the amount spent on promotion by regions within the state.

1977 Visitor Expenditure Survey (Hawaii)
Evelyn Richardson and Ernest J. Donehower
Hawaii Visitor Bureau, 1978

This study was a diary survey of a random sample of hotel guests. Respondents received a gift upon return of the questionnaire.

Vacation Patterns in the North Central Region Market Area with Special Application to Minnesota
unpublished mimeograph, about 1978

This was merely a report of comings and goings in the north central region.

Economic Impact of the Minnesota Tourist and Travel Industry, 1976
Department of Economic Development, Research Bulletin #36, 1977

The report contains percentages of total receipts by industry segment for Minnesota and the U.S. Wisconsin ratios from the 1972 Census of Transportation were used in the analysis. The study considered only direct expenditures, hence no multiplier was developed.

Travel Alberta
Alberta Ministry of Tourism and Small Business
mimeograph, 1980

Included are annual reports for 1978-79, and a marketing strategy for 1980-81. The marketing was to be done by product rather than by region.

South Dakota Travel Industry Statistics
1980 Autumn Tourism Conference
mimeograph

This report contains tables of: vehicle miles driven by month, overnight guests, (June, July, August, September) motel occupancy by month, and campground occupancy rates.

Nebraska Vacation Guide Program Training Manual
Catherine L. Roberts and Richard B. Gartrell, editors
Department of Economic Development, 1979

A tour guide training manual: "The Selling of Nebraska."

Out-of-State Travelers in South Dakota, June, July, August 1975
V.E. Montgomery
Business Research Bureau, School of Business, University of South Dakota, Vermillion, 1976

Questionnaires which were sent to lodge keepers, traffic counts, and the Census of Business report were employed to produce a picture of the tourist in South Dakota.

The 1979 Gasoline Shortage: Lessons for the Travel Industry
Travel Industry Association of America, 1980

This study asserted that fuel expenses were 9.2 percent of auto vacation costs in 1977 and that the Mountain West suffered the most severe reductions in real sales. It used a survey of service station owners.

The Georgia Travel Industry, 1960-1975
Polly W. Hein
Division of Services, College of Business Administration, University of Georgia, Athens, GA, 1977

A benchmark survey was done in 1960-61 and was updated by estimation each year after that. "Current estimates are that each travel dollar is multiplied between 1.5 and 2.0 times." This was based on a breakdown of the percentage of total expenditures for various goods and services. The 1960 survey used a mailback diary questionnaire, but later they used mailbacks from their "Welcome Centers" for the updates.

Winter Recreation Visitor Study, Wisconsin, 1979
Rollin B. Looper, et al.
University of Wisconsin Extension, 1979

Questionnaires were mailed to a random sample drawn from registrations at various types of lodging facilities. Their expenditure multiplier was 1.7. The report also had a section on marketing -- segmentation and targeting, etc.

The Impact of Tourism in the Four Corners Region (Draft Interim Report)
Stephen R. Flance and Associates, Inc.
Santa Fe, New Mexico
mimeograph, 1979

This study employed secondary data including the 1970 Census. "Each regional travel dollar generates an additional $1.80 in indirect local spending. Twenty-three cents of each dollar goes directly to wages, 13 cents to taxes." "Regional travel employment multiplier of 2.4." "Expenditure multiplier of 2.8." The study also includes grocery price differences for communities dependent on tourism versus those not, and also a bibliography of data sources. In addition, there is an appendix on multipliers.

Washington Travel and Tourism Report, 1983 Review
David B. Tanner
Washington State Department of Commerce and Economic Development, 1984

The most significant findings reported were: Expenditures of $45,824 generate one direct job and state and local taxes are 4.8 percent of direct travel expenditures. The total employment multiplier is 2.4 . . . the tax multiplier is 2.1 .

Proceedings: Conference on "The Old West Region -- Energy and its Impact on Tourism -- 1980 and Beyond"
Boys Town Research Center, Boys Town, NE, 1979

This conference included presentations from various individuals on the general theme that as gasoline prices increase relative to the rest of the CPI, tourism will be hurt. Some of the speakers referred to questionnaires relating various price levels to travel plans. The general tone of the conference was pessimistic.

1983 Travel Advertising Study, Preliminary Reports
Oregon Economic Development Department, Tourism Division

It used a survey sent to a sample of those who responded to their advertising campaign via a toll free telephone call. A copy of the questionnaire is included.

"Diary" surveys were passed out to people stopping at border information centers. The people were asked to fill them out and mail them back at the end of their stay in Oregon.

The Oregon Department of Transportation also conducted interviews of visitors at five different locations in that state.

Kentucky -- Economic Impact of Visitors
Ayse Somersan
Recreation Resources Center, University of Wisconsin -- Extension, Madison, WI, 1980

Data were from the Kentucky Department of Revenue. Tables show the percentage of Kentucky and U.S. jobs for each SIC with LQ > 1. The former over the latter is the "location quotient," if it is greater than 1.0 then the state is a net exporter in that SIC. The report showed a "static export employment multiplier of 2.97."

Kentucky -- Tourism Marketing Analysis
Jack Gray
Recreation Resources Center, University of Wisconsin -- Extension, Madison, WI, 1980

This report is a marketing plan for the state of Kentucky.

Gross Sales of South Dakota's Hospitality -- Recreation -- Tourism Industry, 1978
Arnold Bateman
Cooperative Extension Service, South Dakota State University

The report is a data set which breaks receipts down by industry and by county.

Arkansas Tourism Report
Arkansas Department of Parks and Tourism
mimeograph, 1979

Primarily tables of data of visitors, "economic impact" and "travel tax" revenue -- there is no statement of how the data were derived.

Table 22 illustrates the variation in multipliers derived from several reports reviewed for this study. The income multipliers range from a low of 1.42 to a high of 3.2 in the Oregon studies. Employment multipliers had a range from 1.45 in Vermont to 2.4 in the Four Corners and Washington studies. The multipliers shown in the table also reveal how difficult it is to compare the results of tourism research from state-to-state and of selecting a research methodology.

Table 22

Multipliers from Selected Tourism Studies

	Multipliers	
	Income	Employment
Colorado	2.0	
Oregon	1.42-3.20 (2.31)*	
Vermont	1.65-2.26 (1.96)*	1.45-2.32 (1.89)*
Michigan	1.78	1.48
Georgia	1.50-2.0 (1.75)*	
Wisconsin	1.7	
Four-Corners**	2.8	2.4
Washington	---	2.4
Kentucky	1.65-2.36 (2.01)*	2.36
Montana (Finnie)	1.84	2.38
Mean	2.02	2.15
Standard deviation of the means	.35	.38
Range	1.42-3.2	1.45-2.4

*Mean value.

**The area where the corners of the states of Arizona, New Mexico, Colorado, and Utah meet.

Appendix A

Input-Output Model

During the early stages of this study Dr. Merle Faminow of the Department of Agricultural Economics and Economics at Montana State University offered us the opportunity to run our data through their Montana Input-Output Model (MIOM). Results from this type of analysis would provide information about the impact of tourism on the Montana economy that would not be available from the ratio model used by Finnie.

The ratio model may be considered a less sophisticated version of the MIOM. The ratio model examines expenditures and the income that these expenditures produce initially. It does not account for the additional economic impact due to expenditures by proprietors and employees of the businesses which tourists patronize. For example, a hotel may contract with a local linen service which will lead to increases in output and possibly greater employment. This is the type of economic impact which the MIOM is designed to ascertain.

The Montana input-output model consists of nearly five hundred economic sectors. It is based on the national Bureau of Economic Analysis model, but some coefficients which determine the relationships between the sectors have been changed to better describe the Montana economy which is smaller and less diverse than the U.S. economy.

To derive Montana coefficients from the national model, the national coefficients were multiplied by the fraction of total consumption in that sector which the state provides itself. This, however, tends to overestimate

impact -- especially in a small, isolated, relatively homogenous economy like that of Montana. Isard points out:

> Consider first the factors which in our isolated regional economy lead to changing cents worth of inputs per dollar output as output varies. One is economies of scale, which is present in most industries. A second is localization economics -- external economies when like plants agglomerate at one place. A third is urbanization economies -- external economies which derive when unlike plants agglomerate at one locality. These economies tend to deny the use of constant production coefficients . . .[1]

Hence, the impact for all industries, with the likely exception of transportation, is probably overestimated. Although this may be considered a weakness in this methodology it does provide information about trends and impacts on the total economy of the state resulting from expenditures in various sectors of the economy. Hence input-output analysis can be a useful tool for travel and tourism research.

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[1]Isard, Walter, Technology Press -- M.I.T. and John Wiley & Sons, N.Y., 1960.

Appendix B

Determination of the Percentage of Autos from Out-of-State

The Montana Department of Highways provided us with four year averages (1980-1983) of the percentage of out-of-state traffic by quarter at five count stations. We multiplied these figures by the percent which the quarterly daily average is of the yearly daily average, summed the results and divided by four hundred to determine what percentage of the yearly traffic flow is from out-of-state. This method gives more weight to the out-of-state percentages of the high volume quarters. These results are shown in table 1.

Determination of the Percentage of Noncommercial Traffic

The Highway Department and the U.S. Customs Service provided us with estimates of the percentage of total traffic which is commercial. In the case of the Highway Department these figures came from their visual counting as did the figures for the percent out-of-state. The Customs Service estimates were made by Mr. John Sharone of the Great Falls office.

First, total incoming traffic was determined (table 2). The Customs Service numbers came in this form while the Highway Department data were in the form of daily averages. These averages count traffic going both ways so they were divided by two and then multiplied by 365 to get numbers which could be directly compared with those from the Customs Service.

Using these total incoming traffic figures we derived a weighted average of the percent of noncommercial traffic. These results are provided in table 2.

Table 1

Determination of the Percentage of Out-of-State Auto Traffic
1980-1983

	Quarter	Percent from Out-of-State	Quarterly Daily Average as Percent of Daily Average	Weighted Figures		Yearly Percentage Out-of-State
Lima	1	(31.2)	(78.39)	2,446		
	2	(32.8)	(103.83)	3,406		
	3	(49.9)	(131.81)	6,577		
	4	(22.3)	(85.98)	1,917		
				14,346	÷ 400 =	35.87
West Yellowstone	1	(13.6)	(39.09)	532		
	2	(34.0)	(101.70)	3,458		
	3	(55.4)	(208.38)	11,544		
	4	(22.0)	(50.83)	1,118		
				16,652	÷ 400 =	41.63
Gardiner	1	(8.8)	(54.92)	483		
	2	(15.1)	(100.86)	1,523		
	3	(52.4)	(180.08)	9,436		
	4	(12.1)	(64.14)	776		
				12,218	÷ 400 =	30.55
Wibaux	1	(24.9)	(72.92)	1,816		
	2	(36.8)	(106.24)	3,910		
	3	(42.3)	(138.16)	5,844		
	4	(32.7)	(82.69)	2,704		
				14,274	÷ 400 =	35.69
Superior	1	(22.9)	(60.55)	1,387		
	2	(34.2)	(108.02)	3,694		
	3	(52.5)	(150.39)	7,895		
	4	(22.2)	(81.04)	1,799		
				14,775	÷ 400 =	36.94

Table 2

Determination of the Percentage of Noncommercial Traffic from Out-of-State

	1983 Incoming Noncommercial Traffic	1983 Incoming Traffic
Lima[a]	168,813	234,330
West Yellowstone[a]	260,063	301,855
Gardiner[a]	156,038	181,770
Wibaux[a]	286,708	387,995
Superior[a]	473,223	643,860
Chief Mountain[b]	36,905	36,905
Piegan[b]	100,691	101,708
Roosville[b]	71,638	89,597
Sweetgrass[b]	86,104	172,207
Raymond[b]	44,528	63,612
Total	1,684,711	2,213,839

$$\frac{\text{Incoming noncommercial}}{\text{Total incoming}} = \frac{1,684,711}{2,213,839} = .7610$$

[a]Highway Department.
[b]U.S. Customs Service.

Determination of Out-of-State Percentage of Noncommercial Traffic

In order to determine the percentage of noncommercial traffic from out-of-state, we took the figures from the Montana Highway Department count stations (see table 1) and weighted them by their total noncommercial incoming traffic count (see table 3). This gives us an average out-of-state percentage of 36.7 percent which we assume holds true for the customs stations as well as the Wyoming Highway count station (Parkman North). The results are summarized in table 3.

Table 3

Determination of Out-of-State Percentage for Noncommercial Traffic

	Station Number	(1) Out-of-State Percentage	(2) 1983 Total Incoming Traffic	(1)(2) 1983 Incoming Out-of-State Traffic
Lima	17	35.87	234,330	84,054
West Yellowstone	18	41.63	301,855	125,662
Gardiner	20	30.55	181,770	55,531
Wibaux	25	35.69	387,995	138,475
Superior	30	36.94	643,860	237,842
		36.66	1,749,810	641,564

	Station Number	Out-of-State Percentage	1983 Noncommercial Incoming Traffic	Incoming Noncommercial Out-of-State Traffic
Lima	17	35.87	168,813	60,553
West Yellowstone	18	41.63	260,063	108,264
Gardiner	20	30.55	156,038	47,670
Wibaux	25	35.69	286,708	102,326
Superior	30	36.94	473,223	174,809
		36.70	1,344,845	493,622